underestimation of the TPS dose calculations at intermediate doses needs further investigation.
Conclusions: The EBT3-based in-vivo skin dose measurements revealed an unexpected agreement with the TG43-based TPS for the patients exposed to higher skin doses. Intermediate calculated doses presented a large underestimation of the measured doses to the skin as evaluated by the EBT3 films. The clinical relevance of these findings requires further study.

127
DOSIMETRIC COMPARISON OF 3D CONFORMAL RADIATION THERAPY (3DCRT) AND VOLUMETRIC ARC THERAPY (VMAT) IN PATIENTS WITH BILATERAL BREAST CANCER WITH INDICATIONS FOR ADJUVANT RADIATION
Karen Long[1], Darren Graham[1], Michael Roumeliotis[2], Tien Phan[2]
[1]Tom Baker Cancer Centre, Calgary, AB
[2]University of Calgary, Calgary, AB

Purpose: Recent evidence demonstrating the survival benefit with regional nodal radiation therapy (RT) has included the internal mammary chain (IMC) in the treatment volume. However, including the IMC can increase dose to the heart and lungs, and this is especially challenging in patients who have bilateral breast cancer. Case series for adjuvant RT in bilateral patients have favoured VMAT, but many of these studies did not encompass the IMC and do not report on the integral dose to the heart, left anterior descending coronary artery (LAD) or lungs. To determine if VMAT was superior to standard 3DCRT planning for patients with bilateral breast cancer when the intent is to treat the bilateral chest walls and nodal areas, including the internal mammary chain (IMC) nodes, simultaneously.
Methods and Materials: Three patients treated with mastectomy for bilateral, node-positive breast cancer were treated with a 7-field mono-isocentric photon technique and direct electron field. The 3DCRT technique included bilateral tangents, bilateral supraclavicular-axillary volumes and a central, direct mixed photon/electron fields. Retrospectively, mono-isocentric VMAT plans were generated for the same volumes for each patient. VMAT plans using six coplanar arcs for the chest wall portion were summed with the adjacent static bilateral supraclavicular plan. Patients 1 and 2 were scanned, planned and treated using a deep inspiration breath hold method, while Patient 3 was scanned, planned and treated during normal breathing. Dosimetric results were compared between techniques for each patient.
Results: Coverage of the target bilateral chest wall and IMCs (CTV) was marginally higher in the VMAT generated plans as compared to the 3DCRT plans (92.5-96.1% versus 87.1%-94.8%). Dose to the IMC (V80 IMC) was similar between planning methods (mean 99.3% 3DCRT versus 99.8% VMAT). Dose to the lungs, heart, and LAD were all lower in the 3DCRT plans. V20 for both lungs was a mean of 18.4% for 3DCRT versus 31.6% for VMAT plans. Mean heart dose was 9.6 Gy for 3DCRT versus 13.5 Gy for VMAT plans. Mean LAD dose was 5.6 Gy for 3DCRT versus 19.2 Gy for VMAT plans.
Conclusions: Patients with bilateral breast cancer having adjuvant RT including the IMC received significant dose to normal structures. VMAT improved target coverage slightly compared to 3DCRT, but the dose to heart, LAD and lungs were greater in VMAT plans, and may increase the risk of long-term cardio-pulmonary toxicity and the rate of secondary malignancy.

128
IMPLANTABLE DEVICES AND RADIATION EXPOSURE
Majed Alghamdi[1], Robert Kosztyla[1], Jon-Paul Voroney[2]
[1]University of Calgary, Calgary, AB
[2]Tom Baker Cancer Centre, Calgary, AB

Purpose: To review the literature on radiotherapy for patients with implantable electronic devices, including chest, abdomen and brain implants. To provide an unreported example of radiation near a pacemaker, where minimal dose from a later radiosurgery treatment was apparently additive with earlier higher dose treatment near the pacemaker: summed dose may have resulted in pacemaker failure.
Methods and Materials: We review pacemaker guidelines, and case reports for deep brain stimulators (three reports, one article on vagus nerve stimulation devices), insulin pumps (100 million plus patients worldwide, with one review of insulin, intrathecal and chemotherapy pumps), cochlear implants (300 thousand plus patients worldwide, eight reports), and retinal implants (uncommon, first Canadian implant in 2014 – a single guideline from the manufacturer was found).
Results: Our patient unexpectedly suffered pacemaker failure. The risks to other devices are largely unknown.
Conclusions: There are gaps in the literature concerning treatment of patients with common implantable devices. We provide prudent, physics/physiology-based recommendations for a Canadian-care tertiary facility context for implanted devices, while data is lacking.

129
INTEREST GROUPS: A VEHICLE TO INCREASING MEDICAL STUDENT EXPOSURE TO ONCOLOGY
Taylor Betsch[1], Max Leblanc[1], Meredith Giuliani[2], Amanda Caissie[1]
[1]Dalhousie University, Saint John, NB
[2]University of Toronto, Toronto, ON

Purpose: Medical students perceive a lack of formal exposure to oncology-related topics during their training. The purpose of this study is to report the impact of an oncology interest groups (OIG) event on medical student interest in oncology as well as comfort with oncology topics such as breaking bad news.
Methods and Materials: An extracurricular OIG event was coordinated, through open invitation of all 60 first and second year students from one campus of a larger medical school. One physician panelist was invited from each of the following specialties: surgical oncology, medical oncology and radiation oncology. A general practice oncologist covering in-patient oncology was unable to attend. The two hour event included panel discussion of perceived pros and cons of a career in oncology. Medical students were provided opportunity for questions within the larger group setting or the three smaller group break-out sessions, each facilitated by a panel physician framing the discussion around the skill of breaking bad news. Pre- and post-event surveys were used to assess the effect of this event on medical student interest in oncology, perception of oncology curriculum in their training and comfort level delivering bad news.
Results: The majority of attending students (n =15/17, 88%) responded to the survey. Student interest in pursuing an oncology elective increased from 47% (7/15) pre-event to 67% (10/15) post-event. Similarly, medical student interest in pursuing a career in oncology increased from 47% (7/15) pre-event to 53% (8/15) post-event. Pre-event, medical oncology (7/15) and general practice oncology (2/15) were ranked as the most interesting specialties in oncology, while post-event medical oncology (5/15) and radiation oncology (5/15) ranked highest. While all 15 students felt that it was important to have a general knowledge of oncology in any practice, many students felt that their program did not effectively cover oncology topics in general (40%, 6/15) or specifically the delivery of bad news (47%, 7/15). Only 13% (2/15) of students felt comfortable delivering bad news to patients pre-event, although 80% (12/15) felt more comfortable post-event. Few students (4/14, 27%) felt they had adequate coping skills to deal with the morbidity and mortality seen in an oncology practice prior to the event, however, this increased to 73% (11/15) after the event.
Conclusions: Oncology interest groups can increase medical student exposure to oncology specialties and help them explore oncology as a possible career choice. OIG may also serve as a way to further educate medical students regarding oncology topics such as breaking bad news, to increase their comfort level with such a skill that is crucial in all fields of medicine. The potential